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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,577	03/30/2004	M. Turhan Taner	RSI-04-01	4319
34010	7590	07/12/2005	EXAMINER	
RICHARD A. FAGIN P.O. BOX 1247 RICHMOND, TX 77406-1247			HUGHES, SCOTT A	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/813,577

Applicant(s)

TANER ET AL.

Examiner

Scott A. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Drawings***

1. The informal drawings are not of sufficient quality to permit examination. Accordingly, replacement drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to this Office action. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

Applicant is given a TWO MONTH time period to submit new drawings in compliance with 37 CFR 1.81. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a). Failure to timely submit replacement drawing sheets will result in ABANDONMENT of the application.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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3. Claims 1, 4 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang.
4. With regard to claim 1, Zhang discloses a method for seismic imaging of subsurface diffractors (P-SV wave conversion points known to occur at fractures in the earth). Zhang discloses performing velocity analysis on a seismic time record section (Figs. 7, 8) (Column 4, Lines 10-67). Zhang discloses depth migrating the time section for offsets exceeding one-half a distance between a seismic energy source and a seismic receiver most distant from the source during acquisition of seismic data used to generate the time record section (Figs. 1, 7-8) (Column 1, Lines 45-55; Column 4, Lines 7-67; Column 7).
5. With regard to claim 4, Zhang discloses a method for imaging subsurface diffractors. Zhang discloses deploying a seismic energy source at a selected position S (Fig. 1) near the Earth's surface, deploying a plurality of seismic receivers at selected positions R along the Earth's surface, actuating the source at selected times, and recording signals detected by the receiver (Column 1, Lines 38-55). Zhang discloses performing velocity analysis on a seismic time record section made from the recorded signals (Figs. 7, 8) (Column 4, Lines 10-67). Zhang discloses depth migrating the time section for offsets exceeding one-half a distance between the source and one of the receivers most distant from the source (Figs. 1, 7-8) (Column 1, Lines 45-55; Column 4, Lines 7-67; Column 7).
6. With regard to claim 7, Zhang discloses a computer program stored in a computer readable medium, having program logic operable to cause a computer 50

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(Fig. 7) to perform the steps of performing velocity analysis on a seismic time record section, and depth migrating the time section for offsets exceeding one-half a distance between a seismic energy source and a seismic receiver most distant from the source during acquisition of seismic data used to generate the time record section (Figs. 1, 7-8) (Column 1, Lines 45-55; Column 4, Lines 7-67; Column 7).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
8. Claims 2-3, 5-6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Martinez.
9. With regard to claims 2, 5, and 8 Zhang does not disclose that the depth migrating comprises Kirchhoff migration. Martinez discloses that Kirchhoff migration is used for depth migration in VTI subsurfaces (Columns 1-2). It would have been obvious to use the known Kirchhoff migration for VTI subsurfaces as the depth migration on VTI subsurfaces in Zhang in order to obtain a weighted diffraction stack that is close to true-amplitude migration.
10. With regard to claims 3, 6, and 9, Martinez discloses that the depth migrating comprises determining a time gradient of the diffractors, and attenuating spatial aliasing of specular reflective events in the depth migrated time section using the time gradient (Fig. 11) (Column 2, Lines 49-61). It would have been obvious to modify Zhang to

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contain an anti-aliasing step as disclosed by Martinez in order to remove distortion from the seismic record.

**Conclusion**

11. The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
SAH

  
JACK KEITH  
PRIMARY EXAMINER  
SPE 3663